

FIG. 1

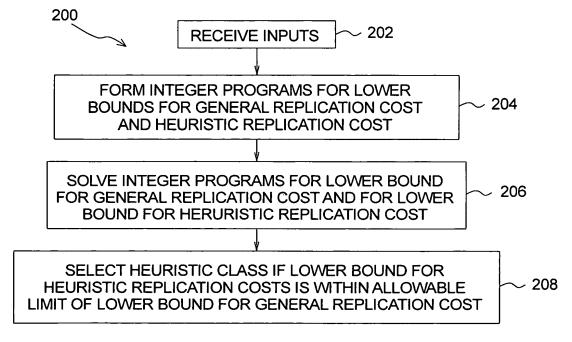


FIG. 2

		Table 1
Variable	Туре	Description
store <sub>nik</sub>	Binary	nth node stores kth data object during ith interval
create <sub>nik</sub>	Binary	kth data object created on nth node during ith interval
covered <sub>nik</sub>	Binary	nth node can access kth data object w/in latency threshold during ith interval
open <sub>n</sub>	Binary	nth node is enabled; it can store replicas and run data placement heuristics

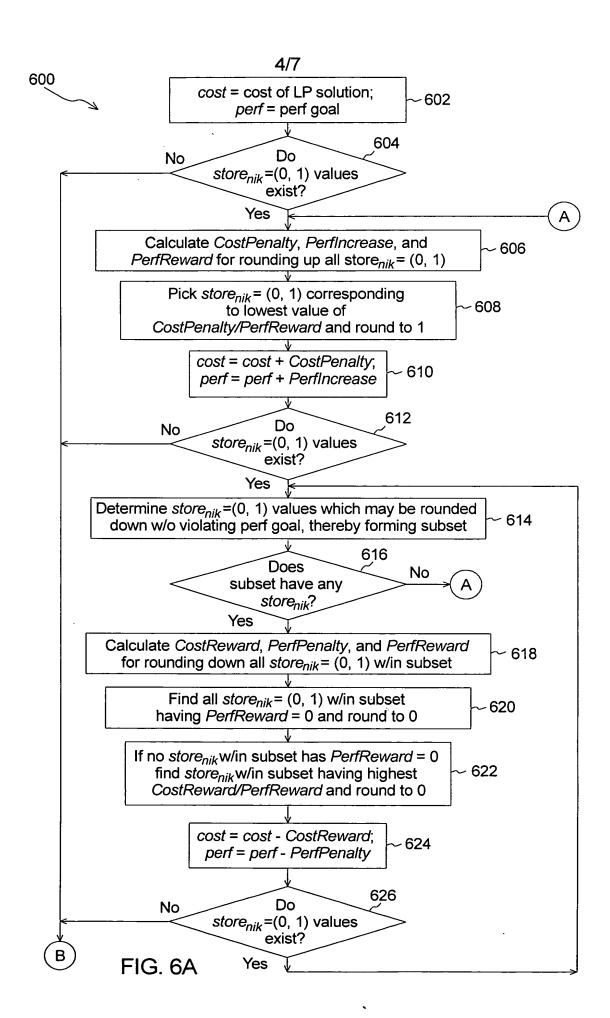
FIG. 3

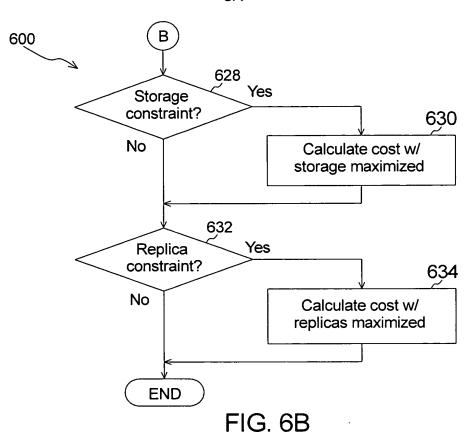
		Table 2
Variable	Туре	Description
read <sub>nik</sub>	Integer	Number of read requests from nth node for kth data object during ith interval
write <sub>nik</sub>	Integer	Number of write requests from nth node for kth data object during ith interval
latency <sub>nm</sub>	Real	Data access latency for accessing an object ath mth node from nth node
dist <sub>nm</sub>	Binary	nth node can access mth node within latency threshold
know <sub>nm</sub>	Binary	nth node uses information from mth node to make placement decision
fetch <sub>nm</sub>	Binary	nth node can fetch data objects form mth node
hist <sub>nik</sub>	Binary	nth node has a record in its activity history of kth data object being accessed on nth node during ith interval
T <sub>lat</sub>	Real	Target latency threshold
T <sub>qos</sub>	Real	Specified ratio of accesses served within latency threshold
α	Integer	Unit cost for storage
β	Integer	Unit cost for replica creation
γ	Integer	Unit cost penalty for an access exceeding latency threshold
δ	Integer	Unit cost for an update message
ζ	Integer	Unit cost for enabling and managing a node

FIG. 4

		Table 3				
			Heuristic properties	operties		
Heuristic class	Storage constraint	Replica constraint	route	кпом	hist	Reactive constraint
Storage constrained heuristics	×		global	global	multi	
Replica constrained heurisitics		×	global	global	multi	
Decentralized storage constrained heuristics w/ local routing	×		local	local	multi	
Local caching	×		local	local	single	×
Cooperative caching	×		global	global	single	×
Local caching w/ prefetching	×		local	local	single	
Cooperative caching w/ prefetching	×		global	global	single	

FIG. 5





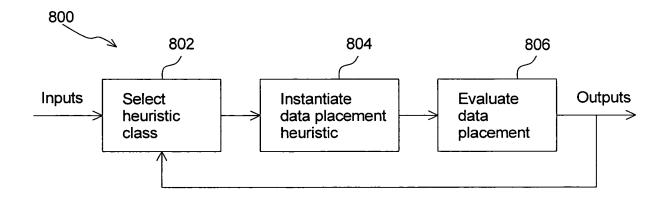
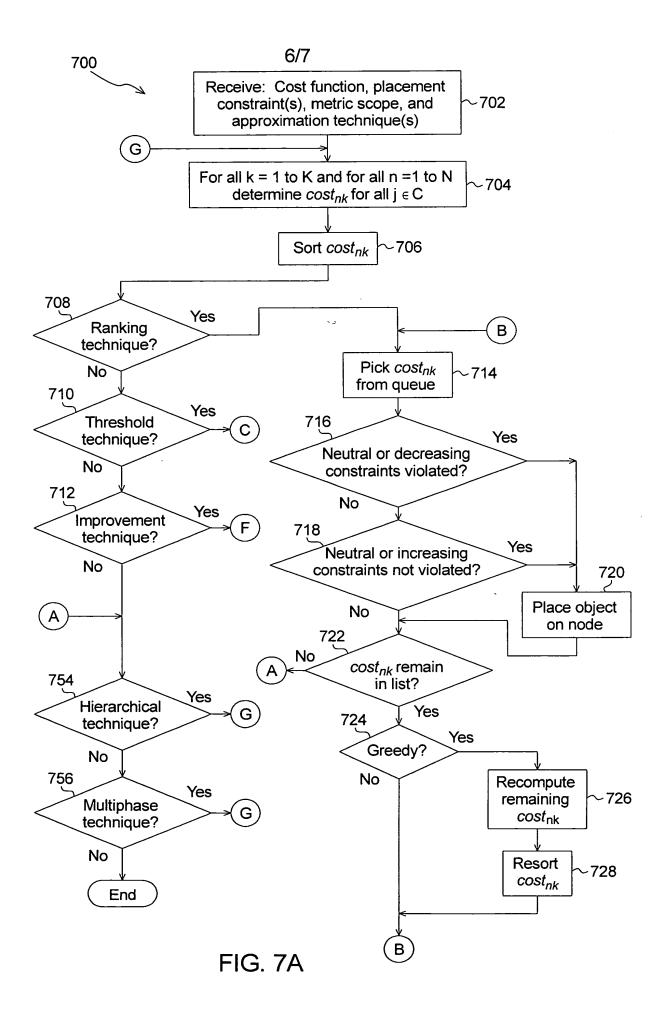


FIG. 8



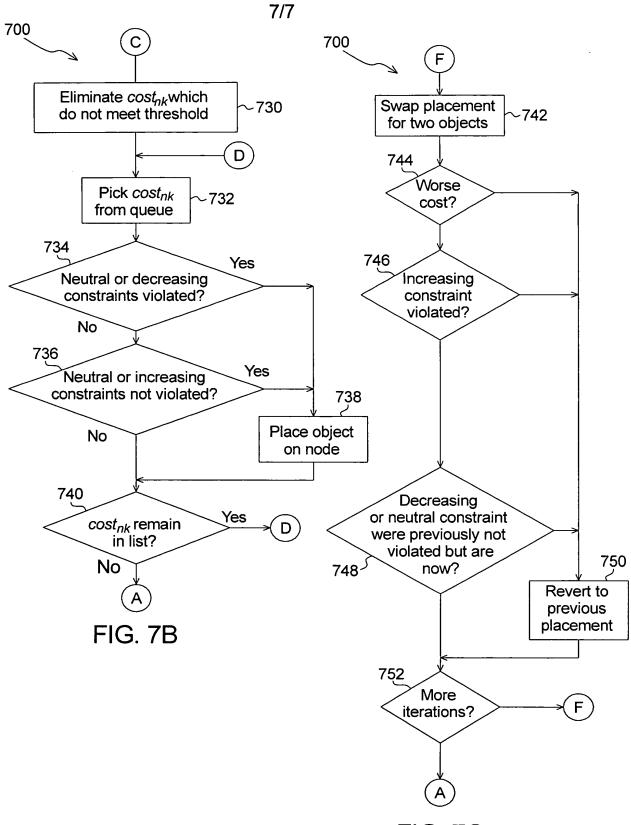


FIG. 7C